

WHAT IS CLAIMED IS:

1. A rotational-operation-quantity input device for inputting an operation quantity indicating a predetermined rotation angle, comprising:

a two-dimensional force sensor for inputting an operational force applied by an operator in time series as a coordinate value (x, y) in an XY two-dimensional rectangular coordinate system;

a polar-coordinate converting section for sequentially converting the coordinate value (x, y) in the rectangular coordinate system given in time series into a coordinate value (r, θ) in a polar coordinate system; and

an operation-quantity recognizing section for recognizing a variation in a value θ of the coordinate value (r, θ) obtained in time series as an operation quantity indicating a rotation angle.

2. The rotational-operation-quantity input device as set forth in Claim 1, wherein the operation-quantity recognizing section recognizes the coordinate value (r, θ) as a significant coordinate value when value r of the coordinate value (r, θ) is larger than a predetermined threshold r_t , and recognizes an operation quantity based on a variation in a value θ in consideration of only a significant coordinate value (r, θ) .

3. The rotational-operation-quantity input device as set forth in Claim 2, wherein the operation-quantity recognizing section recognizes an operation quantity based on a variation in value θ during a continuous period when a significant coordinate value (r, θ) is obtained continuously.

4. The rotational-operation-quantity input device as set forth in Claim 3, wherein, when a value θ generates a variation $\Delta \theta$ exceeding a predetermined threshold θ_t with

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respect to a value " θ before" immediately therebefore during a continuous period during which a significant coordinate value (r, θ) is obtained continuously, the operation-quantity recognizing section recognizes a value corresponding to the variation $\Delta \theta$ as an operation quantity.

5. The rotational-operation-quantity input device as set forth in any one of Claims 1 through 4, wherein the two-dimensional force sensor includes a sensor body, an operating panel that can be inclined in an X-axis direction and in a Y-axis direction independently of each other with respect to the sensor body, and detection means for detecting a coordinate value x and a coordinate value y based on a degree of an inclination in the X-axis direction and in the Y-axis direction of the operating panel.

6. An operating device including the input device as set forth in any one of Claims 1 through 5, having an operational function to specify an icon, comprising:

20 icon display means for annularly displaying a plurality of icons on a display screen;

distinguishing means for displaying an indicator to distinguish a specified icon on the display screen by receiving an instruction to specify one of the plurality of icons;

25 initial-icon specifying means for specifying any one of the plurality of icons as a first specified icon; and

specified-icon changing means for giving an instruction to change the specified icon into a new icon disposed at a position having an interval corresponding to an operation quantity recognized by the operation-quantity recognizing section of the input device.

7. An operating device including the input device as set forth in any one of Claims 1 through 5, being used for volume control or for forwarding/rewinding control in reproducing sound, comprising:

rotation knob display means for displaying a rotation knob used to perform a volume control operation or a forwarding/rewinding control operation in reproducing sound on the display screen; and

- 5 control means for determining a rotation quantity of the rotation knob correspondingly with an operation quantity recognized by the operation-quantity recognizing section of the input device and causing the rotation knob display means to perform a display corresponding to the rotation quantity while
10 performing volume control or forwarding/rewinding control correspondingly with the rotation quantity.

8. An operating device including the input device as set forth in any one of Claims 1 through 5, being used for frame
15 feed in reproducing moving image, comprising:

rotation knob display means for displaying a rotation knob used to perform a frame feed operation in reproducing moving image on the display screen; and

- 20 control means for determining a number of frames to be fed correspondingly with an operation quantity recognized by the operation-quantity recognizing section of the input device and causing the rotation knob display means to perform a display indicating a rotational operation corresponding to the number of frames.